

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-17 (canceled)

18. (currently amended) A method of forming an electrochemical chip, comprising:

forming a first plate by:

depositing a conducting layer on a first support; and etching said conducting layer to form an electrode array;

covering at least one electrode of said electrode array with a coating doped with a ferrocene compound;

irreversibly oxidizing said ferrocene compound during said forming said electrochemical chip;

forming a second plate by:

etching an opening in a second support;

bonding said second plate to said first plate such that said first plate and said second plate define a cavity, with said electrode array being within said cavity.

19. (previously presented) A method of forming an electrochemical chip, comprising:

forming a first plate by:

depositing a conducting layer on a first support; and etching said conducting layer to form an electrode array;

covering at least one electrode of said electrode array with a coating doped with a ferrocene compound;

forming a second plate by:

etching an opening in a second support;
bonding said second plate to said first plate such that said first plate and said second plate define a cavity, with said electrode array being within said cavity, wherein said coating is a supported bilayer lipid membrane.

20. (previously presented) A method of forming an electrochemical chip, comprising:

forming a first plate by:

depositing a conducting layer on a first support; and etching said conducting layer to form an electrode array;

covering at least one electrode of said electrode array with a coating doped with a ferrocene compound;

forming a second plate by:

etching an opening in a second support;

bonding said second plate to said first plate such that said first plate and said second plate define a cavity, with said electrode array being within said cavity, wherein said ferrocene compound is benzoylferrocene.

21. (previously presented) The method of claim 18 further comprising etching said conducting layer to form a plurality of conducting lines, each of said conducting lines extending from an electrode of said electrode array outwardly beyond a periphery of said electrode array.

22. (previously presented) The method of claim 18 further comprising forming said first support by depositing an insulation layer on a silicon wafer.

23. (original) The method of claim 22 further comprising depositing an overlying insulation layer over said conducting layer about a periphery of said array, said second plate being bonded to said first plate at said overlying insulation layer.

24. (previously presented) The method of claim 18 wherein said second support comprises a silicon wafer.

25-31 (canceled)

32. (currently amended) The method of claim [[31]] 18 further comprising selecting a degree of oxidization and oxidizing said ferrocene compound by said selected degree of oxidization.

33. (currently amended) The method of claim 18 wherein said irreversibly oxidizing said ferrocene compound comprises immersing said at least one electrode in an electrolytic solution after covering said at least one electrode with said coating and cyclically subjecting said at least one electrode to potential changes.

34. (previously presented) The method of claim 33 wherein said ferrocene compound is benzoylferrocene.

35. (previously presented) The method of claim 34 wherein said potential changes cycle between about -0.3 V to $+0.8$ V.

36. (previously presented) The method of claim 18 wherein said coating is a supported bilayer lipid membrane.

37. (previously presented) The method of claim 18 further comprising selecting a doping concentration for said ferrocene compound and doping said coating with said ferrocene compound to said selected doping concentration.

38. (previously presented) The method of claim 18 wherein said opening is a window.

39. (previously presented) The method of claim 18 wherein said opening is a depression.

40. (new) A method of forming an electrochemical chip, comprising:

forming a first plate by:

depositing a conducting layer on a first support; and etching said conducting layer to form an electrode array;

covering at least one electrode of said electrode array with a coating doped with a ferrocene compound;

oxidizing said ferrocene compound during said forming said electrochemical chip;

forming a second plate by:

etching an opening in a second support;

bonding said second plate to said first plate such that said first plate and said second plate define a cavity, with said electrode array being within said cavity;

wherein said oxidizing said ferrocene compound comprises immersing said at least one electrode in an electrolytic solution after covering said at least one electrode with said coating and cyclically subjecting said at least one electrode to potential changes;

wherein said ferrocene compound is benzoylferrocene.

41. (new) The method of claim 40 wherein said potential changes cycle between about -0.3 V to $+0.8$ V.